Reference No.: 33
Barite Hill/Nevada Goldfields
HRS Documentation Record
EPA ID No. SCN000407714

South Carolina Department of Health and Environmental Control

Water Pollution Control

PERMIT

TO DISCHARGE WASTEWATER IN ACCORDANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

THIS CERTIFIES THAT

Barite Hill Gold Mine

has been granted permission to discharge wastewater from a facility located at

McCormick, McCormick County
South Carolina

to receiving waters named

Unnamed tributary to Love Creek

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. This permit is issued in accordance with the provisions of the Pollution Control Act of South Carolina (S.C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Federal Clean Water Act (PL 92-500), as amended (33 U.S.C. 1251 *et seq.*, the "Act."

J. Bart Ruiter P.E.

J. Bart Ruiter, P.E.
DIRECTOR, DIVISION OF INDUSTRIAL & AGRICULTURAL WASTEWATER
BUREAU OF WATER POLLUTION CONTROL

Issued: OCT 12 1989

Effective: NOV. 1 1989

Expires: OCT. 31 1994

Permit No.: SC0043401

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date the permittee is authorized to discharge from outfall(s) serial number(s)001: stormwater runoff

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS kg/day (lbs/day) Monthly Average	kg/day (lbs/day) Daily Max.	Other Units (Specify) Monthly Average	Other Units (Specify) Daily Max.	MONITORING REQUIREMENTS Measurement Frequency	Sample Type
Flow-m^3/day (MGD)	-	-	MR	MR	1/occurrence	Instantaneous
Total Suspended Solids	-	-	20 mg/l	30 mg/l	1/occurrence	Grab
Oil and Grease	-	-	10 mg/l	15 mg/l	1/occurrence	Grab
Total Residual Chlorine	-	-	MR	*<100.0 ug/l	1/occurrence	Grab
Cyanide	-	-	**<10.0 ug/l	10.4 ug/l	1/occurrence	Grab
Arsenic	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Copper	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Lead	-	-	MR	** <50. ug/l	1/occurrence	Grab
Mercury	-	-	MR	** < 0.2 ug/l	1/occurrence	Grab
Zinc	-	-	59.0 ug/l	65.0 ug/l	1/occurrence	Grab
Cadmium	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Selenium	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Barium	-	-	1.0 mg/l	2.0 mg/l	1/occurrence	Grab
Chromium (III)	-	-	120.0 ug/l	240.0 ug/l	1/occurrence	Grab
Chromium (VI)	-	-	11.0 ug/l	22.0 ug/l	1/occurrence	Grab

* - Sampling frequency shall be once per occurrence, but need not be more than twice per month.
** - See Part III, special condition 8.
MR = Monitor and Report
Flow is approximately 12.3 million gallons per day.

2. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored once per occurrence, but need not be more than twice per month.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment but prior to mixing with receiving stream.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date the permittee is authorized to discharge from outfall(s) serial number(s)002: stormwater runoff

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS kg/day (lbs/day) Monthly Average	kg/day (lbs/day) Daily Max.	Other Units (Specify) Monthly Average	Other Units (Specify) Daily Max.	MONITORING REQUIREMENTS Measurement Frequency	Sample Type
Flow-m^3/day (MGD)	-	-	MR	MR	1/occurrence	Instantaneous
Total Suspended Solids	-	-	20 mg/l	30 mg/l	1/occurrence	Grab
Oil and Grease	-	-	10 mg/l	15 mg/l	1/occurrence	Grab
Total Residual Chlorine	-	-	MR	*<100.0 ug/l	1/occurrence	Grab
Cyanide	-	-	**<10.0 ug/l	10.4 ug/l	1/occurrence	Grab
Arsenic	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Copper	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Lead	-	-	MR	** <50. ug/l	1/occurrence	Grab
Mercury	-	-	MR	** < 0.2 ug/l	1/occurrence	Grab
Zinc	-	-	59.0 ug/l	65.0 ug/l	1/occurrence	Grab
Cadmium	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Selenium	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Barium	-	-	1.0 mg/l	2.0 mg/l	1/occurrence	Grab
Chromium (III)	-	-	120.0 ug/l	240.0 ug/l	1/occurrence	Grab
Chromium (VI)	-	-	11.0 ug/l	22.0 ug/l	1/occurrence	Grab

* - Sampling frequency shall be once per occurrence, but need not be more than twice per month.
** - See part III, special condition 8.
MR = Monitor and Report
Flow is approximately 12.3 million gallons per day.

2. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored once per occurrence, but need not be more than twice per month.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment but prior to mixing with receiving stream.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date the permittee is authorized to discharge from outfall(s) serial number(s)003: stormwater runoff

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS kg/day (lbs/day) Monthly Average	kg/day (lbs/day) Daily Max.	Other Units (Specify) Monthly Average	Other Units (Specify) Daily Max.	MONITORING REQUIREMENTS Measurement Frequency	Sample Type
Flow-m^3/day (MGD)	-	-	MR	MR	1/occurrence	Instantaneous
Total Suspended Solids	-	-	20 mg/l	30 mg/l	1/occurrence	Grab
Oil and Grease	-	-	10 mg/l	15 mg/l	1/occurrence	Grab
Total Residual Chlorine	-	-	MR	*<100.0 ug/l	1/occurrence	Grab
Cyanide	-	-	**<10.0 ug/l	10.4 ug/l	1/occurrence	Grab
Arsenic	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Copper	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Lead	-	-	MR	** <50. ug/l	1/occurrence	Grab
Mercury	-	-	MR	** < 0.2 ug/l	1/occurrence	Grab
Zinc	-	-	59.0 ug/l	65.0 ug/l	1/occurrence	Grab
Cadmium	-	-	MR	** <10.0 ug/l	1/occurrence	Grab
Selenium	-	-	MR	<5.0 ug/l	1/occurrence	Grab
Barium	-	-	1.0 mg/l	2.0 mg/l	1/occurrence	Grab
Chromium (III)	-	-	120.0 ug/l	240.0 ug/l	1/occurrence	Grab
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* - Sampling frequency shall be once per occurrence, but need not be more than twice per month.
** - See part III, special condition 8.
MR = Monitor and Report
Flow is approximately 12.3 million gallons per day.

2. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored once per occurrence, but need not be more than twice per month.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment but prior to mixing with receiving stream.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

N/A

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than + 10% from the true discharge rates throughout the range of expected discharge volumes. The primary flow device must be accessible to the use of a continuous flow recorder. Where a flume is present, a separate stilling well for Department/EPA use must be provided if required by the Department.

3. Reporting Monitoring Results

Monitoring results obtained each month shall be reported monthly on a Discharge Monitoring Report Form (EPA Form 3320-1). The first report is due postmarked no later than the 28th day of the month following the month this permit becomes effective. Two copies of these, and all other reports required herein, shall be submitted to the Department:

S.C. Department of Health and Environmental Control
ATTN: BWPC/Enforcement Section
2600 Bull Street
Columbia, South Carolina 29201

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to State Environmental Laboratory Certification Regulation 61-81 and Section 304(h) of the Act, as amended. (Federal Register, October 16, 1973; Title 40, Chapter I, Sub-chapter D, Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants." Amended by Federal Register, December 1, 1976, and any other amendments that may be promulgated).

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. the exact place, date and time of sampling;

b. the dates and times the analyses were performed;

c. the person(s) who performed the analyses and the laboratory certification number where applicable;

d. the analytical techniques or methods used; and

e. the results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA-3320-1). Such increased frequency shall also be indicated. Additional or accelerated monitoring may be required to determine the nature and impact of a non-complying discharge on the environment or to determine if a single non-complying sample is representative of the long term condition (monthly average).

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analysis performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Department. The permittee shall furnish to the Department upon request, copies of records required to be kept by this permit.

8. Definitions

a. The "monthly average", other than for fecal coliform, is the arithmetic mean of all samples collected in a calendar month period. The monthly average for fecal coliform bacteria is the geometric mean of all samples collected in a calendar month period. The monthly average loading is the arithmetic average of all individual loading determinations made during the month.

b. The "weekly average" is the arithmetic mean of all the samples collected during a one-week period. For self-monitoring purposes, weekly periods in a calendar month are defined as three consecutive seven day intervals starting with the first day of the calendar month and a fourth interval containing seven days plus those days beyond the 28th day in a calendar month. The value to be reported is the single highest of the four weekly

averages computed during a calendar month. The weekly average loading is the arithmetic average of all individual loading determinations made during the week.

c. The "daily maximum" is the highest average value recorded of samples collected on any single day during the calendar month.

d. The "instantaneous maximum" is the highest value recorded of any sample collected during the calendar month.

e. Arithmetic Mean: The arithmetic mean of any set of values is the summation of the individual values divided by the number of individual values.

f. Geometric Mean: The geometric mean of any set of values is the Nth root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one. (1).

g. Department: The South Carolina Department of Health and Environmental Control.

h. Act: The Clean Water Act (Formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended.

i. Grab Sample: An individual discrete or single influent or effluent portion of at least 100 milliliters collected at a time representative of the discharge and over a period not exceeding 15 minutes and retained separately for analysis. Instantaneous flow measured at the time of grab sample collection shall be used to calculate quantity.

j. Composite Sample: One of the following four types of composite samples as defined is specified within this permit:

(1) An influent or effluent portion collected continuously over a specified period of time at a rate proportional to the flow.

(2) A combination of not less than 8 influent or effluent grab samples collected at regular (equal) intervals over a specified period of time, properly preserved, (See part I.C.4.) and composited by increasing the volume of each aliquot in proportion to flow. If continuous flow measurement is not used to composite in proportion to flow, the following method will be used: Take an instantaneous flow measurement each time a grab sample is collected. At the end of the sampling period, sum the instantaneous flow measurements to obtain a total flow to determine the partial amount (percentage) of each grab sample to be combined to obtain the composite sample.

(3) A combination of not less than 8 influent or effluent grab samples of equal volume but at variable time intervals that are inversely proportional to the volume of the flow. That is, the time interval between aliquots is reduced as the volume of flow increases.

(4) A combination of not less than 8 influent or effluent grab samples of constant (equal) volume collected at regular (equal) time intervals over a specified period of time, while being properly preserved.

Continuous flow or the sum of instantaneous flows measured and averaged for the specified compositing time period shall be used with composite sample results to calculate quantity.

9. Right of Entry

The permittee shall allow the Commissioner of the Department of Health and Environmental Control, the Regional Administrator of EPA, and/or their authorized representatives:

a. To enter upon the permittee's premises where a regulated facility or activity and effluent source is located in which any records are required to be kept under the terms and conditions of this permit, and,

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit and sample or monitor any substances or parameters at any location for the purposes of assuring permit compliance.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit non-compliance constitutes a violation of the Act and the S.C. Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for the denial of a permit renewal application.

2. Civil and Criminal Liability

a. Any person who violates a term, condition or schedule of compliance contained within this permit is subject to the actions defined by Sections 48-1-320 and 48-1-330 of the S.C. Pollution Control Act.

b. Except as provided in permit conditions on "Bypassing" (Part II, C.2.), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for non-compliance.

c. It shall not be an acceptable defense of the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. It is the responsibility of the permittee to have a treatment facility that will meet the final effluent limitations of this permit. The approval of plans and specifications by the Department does not relieve the permittee of responsibility for compliance.

3. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Act, the S.C. Pollution Control Act or applicable provisions of the S.C. Hazardous Waste Management Act and the S.C. Oil and Gas Act.

4. Permit Modification

a. The permittee shall furnish to the Department within a reasonable time any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit.

b. Upon sufficient cause, this permit may be modified, revoked, reissued, or terminated during its term, after public notice and opportunity for a hearing. Modifications deemed to be minor will not require public notice.

c. The filing of a request by the permittee for a permit modification, or a notification of planned changes or anticipated non-compliance, does not stay any permit condition.

5. Toxic Pollutants

Notwithstanding Part II.A.4. above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitations for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

7. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

8. Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

9. Onshore and Offshore Construction

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

B. REPORTING REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any planned facility expansions, production increases, or process modifications which will result in a new or different discharge of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Department of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Twenty-Four Hour Non-Compliance Reporting

a. The permittee shall report any non-compliance with provisions specified in this permit which may endanger public health or the environment. The permittee shall notify the Department orally within 24 hours of becoming aware of such conditions. During normal working hours call 803/734-5300. After hour reporting should be made to the 24 hour Emergency Response telephone number 803/253-6488. The permittee shall provide the following information to the Department in writing, within five (5) days of becoming aware of such conditions:

1. A description of the discharge and cause of non-compliance; and,

2. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

b. The following violations shall be included in a 24 hour report when they might endanger health or the environment:

1. An unanticipated bypass which exceeds any effluent limitation in this permit;

2. Any upset which exceeds any effluent limitation in the permit.

c. As soon as the permittee has knowledge of or anticipates the need for a bypass, but not later than 10 days before the date of the bypass, it shall notify the Department and provide a determination of the need for bypass as well as the anticipated quality, quantity, time of duration, and effect of the bypass.

3. Other Non-Compliance

The permittee shall report in narrative form, all instances of non-compliance not previously reported under Section B, Paragraph B.2., at the time Discharge Monitoring Reports are submitted. The reports shall contain the information listed in Paragraph B.2.a.

4. Transfer of Ownership or Control

A permit may be transferred to another party under the following conditions:

a. The permittee notifies the Department of the proposed transfer at least thirty (30) days in advance of the proposed transfer date;

b. A written agreement is submitted to the Department between the existing and new permittee containing a specific date for the transfer of permit responsibility, coverage, and liability for violations up to that date and thereafter.

Transfers are not effective if, within 30 days of receipt of proposal, the Department disagrees and notifies the current permittee and the new permittee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed.

5. Expiration of Permit

The permittee is not authorized to discharge after the expiration date of this permit, unless a completed application for reissuance is submitted no later than 180 days prior to the expiration date. Permission may be granted to submit an application later than this, but not later than the expiration date of the permit. In accordance with Section 1-23-370 of the code of laws of South Carolina, if a timely and sufficient application is made for any activity of a continuing nature, the existing permit does not expire until a final determination is made to renew or deny renewal of the existing permit.

6. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified.

a. All permit applications shall be signed as follows:

1. For a corporation: by a principal executive officer of at least the level of vice-president or by a duly authorized representative;

2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or,

3. For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official.

b. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by duly authorized representation only if:

1. The authorization is made in writing by a person described above and submitted to the Department;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

7. Availability of Reports

Except for data determined to be confidential under Section 48-1-270 of the S.C. Pollution Control Act, all reports prepared in accordance with the terms and conditions of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 48-1-340 of the S.C. Pollution Control Act.

8. Changes in Discharges of Toxic Pollutants or Hazardous Substances

a. The permittee shall notify the Department as soon as it knows or has reason to believe that any activity has occurred or will occur which would result in the discharge in any outfall of:

1. Any toxic pollutant(s) identified under Section 307(a) of the Act which exceed the highest of the following concentrations and are not limited in the permit.

- 1 mg/l for antimony (Sb);
- 0.500 mg/l for 2,4-dinitrophenol or 2-methyl, -4,6-dinitrophenol;
- 0.200 mg/l for acrolein or acrylonitrile;
- 0.100 mg/l for any other toxic pollutant; or,
- Ten (10) times the maximum concentration value reported in the permit application.

2. Any hazardous substance(s) identified under Section 311 of the Act as determined by Federal Regulation 40 CFR 117.

b. The permittee must notify the Department as soon as it knows or has reason to believe that it has begun or expects to begin to use or manufacture as an intermediate or final product or by-product any toxic pollutant or hazardous substance which was not reported in the permit application.

C. OPERATION AND MAINTENANCE

1. Facilities Operation

a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls as determined by the laboratory certification program of the Department. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. Maintenance of facilities, which necessitates unavoidable interruption of operation and degradation of effluent quality shall be scheduled during non-critical water quality periods and carried out in a manner approved by the Department.

b. The permittee shall provide for an operator, as certified by the South Carolina Board of Certification for Environmental Systems Operators, with a grade equal to or higher than the classification designated in Part IIIA3. The name and grade of the operator of record shall be submitted to the Department prior to placing the facility into operation. A roster of operators associated with the facility's operation and their certification grades shall also be submitted with the name of the "operator-in-charge". Any changes in operator or operators shall be submitted to the Department as they occur.

2. Bypassing

Any intentional diversion from or bypass of waste streams from any portion of wastewater collection and treatment facilities which is not a designed or established operating mode for the facility is prohibited except (a) where unavoidable to prevent loss of life, personal injury or severe property damage, or (b) where excessive storm drainage or run-off would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit and there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or retention of untreated wastes. "Severe property damage" does not mean economic loss caused by delays in production.

3. Duty to Mitigate, Halt or Reduce Activity

The permittee shall take all reasonable steps to prevent, minimize or correct any adverse impact on public health or the environment resulting from non-compliance with this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with this permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided.

4. Power Failures

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. In accordance with the Schedule of Compliance contained in Part I.B., provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I.B., have a plan of operation which will:

b. Halt, reduce, or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

5. Removed Substances

Solids, sludges, filter backwash or other residuals removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent such materials from entering State waters and in accordance with guidelines issued pursuant to Section 405 of the Act, and the terms of a construction or NPDES and/or solid or hazardous waste permit issued by the Department.

PART III

A. OTHER REQUIREMENTS

1. The permittee shall maintain at the permitted facility a complete Operations and Maintenance Manual for the waste treatment plant. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment plant. The manual shall contain a general description of the treatment process(es), operating characteristics that will produce maximum treatment efficiency and corrective action to be taken should operating difficulties be encountered.

2. The permittee shall provide for the performance of routine daily treatment plant inspections by a certified operator of the appropriate grade as defined in Part II.C.1. The inspection shall include, but is not limited to, areas which require a visual observation to determine efficient operations and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by Part I.C.7., and the records shall be made available for on-site review during normal working hours.

3. The wastewater treatment plant shall be assigned a classification in the Permit to Construct which will be issued by the Department.

4. The permittee shall maintain an all weather access road to the wastewater treatment plant and appurtenances at all times.

5. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C), (D), and (E), 304(b)(2), and (4) and 307(a)(2) of the Clean Water Act, as amended, if the effluent standard or limitation so issued or approved:

   (a) Contains different conditions or is more stringent than any effluent limitation in the permit; or
   (b) Controls any pollutant not limited in the permit.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

6. The permittee shall develop and implement a Best Management Practices (BMP) plan to identify and control the discharge of significant amounts of oils and the hazardous and toxic substances listed in 40 CFR Part 117 and Tables II and III of Appendix D to 40 CFR Part 122. The plan shall include a listing of all potential sources of spills or leaks of these materials, a method for containment, a description of training, inspection and security procedures, and emergency response measures to be taken in the event of a discharge to surface waters or plans and/or procedures which constitute an equivalent BMP. Sources of such discharges may include materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas. The BMP plan shall be developed in accordance with good engineering practices, shall be documented in narrative form, and shall include any necessary plot plans, drawings, or maps. The BMP plan shall be developed no later than six months after issuance of the final permit (or modification), and shall be implemented no later than one year after issuance of the final permit (or modification). The BMP plan shall be maintained at the plant site and shall be available for inspection by EPA and Department personnel.

7. The permittee has not applied for approval to discharge process water. Therefore, this permit does not authorize the discharge of process water.

8. The applicable effluent limitation derived for Cadmium, Copper, Silver, Cyanide, Thallium and Lead based on EPA Water Quality Criteria area:

	Daily Maximum (ug/l)
Cadmium	0.66
Copper	6.5
Mercury	0.012
Cyanide	5.2
Total Residual Chlorine	11.0
Lead	1.3
Arsenic	0.022
Selenium	2.6

The State's current lower limits of detection for these pollutants are indicated on the limitation pages. The permittee must analyze to the lowest detectable limit of a South Carolina certified laboratory. Should analytical capabilities improve such that the detection limits are the same as or lower than the above limitations, the limitations shall be applicable.

9. A macroinvertebrate study and a 48-hour acute toxicity test with 100% effluent shall be performed twice per year. The proposed study plans shall be submitted sixty (60) days prior to the study for SCDHEC's review and approval. A report with the results and conclusions of the studies shall be submitted within ninety (90) days of the date of the studies. Based on the results of these studies, this permit may be modified.

RATIONALE

NPDES Permit #SC0043401
Barite Hill Gold Mine
McCormick County

I. Reason for permit: New permit to allow for the discharge of stormwater runoff to Hawe Creek VIA outfalls 001, 002, and 003.

II. General Information

1. SIC 1041 - Open Pit Gold Mine
   "Heap Leach" process

2. Outfall 001
   - Stormwater runoff
   - 19 cfs = 12.3 MGD

3. Outfall 002
   - Stormwater runoff
   - 19 cfs = 12.3 MGD

4. Outfall 003
   - Stormwater runoff
   - 19 cfs = 12.3 MGD

5. Discharge to tributaries of Hawe Creek
   a. 7Q10 of the ephemeral tributary south of the site which drains northward along the west side of the site is zero. Outfalls 001 and 002 discharge to this tributary.
   b. 7Q10 of the perennial tributary running along the north side of the site is zero. Outfall 003 discharges to this tributary.
   c. 30Q2 :
      - Outfall 001: 0.027 cfs = 0.0174 MGD
      - Outfall 002: 0.005 cfs = 0.0032 MGD
      - Outfall 003: 0.018 cfs = 0.0116 MGD
   d. Class = Class B (Water Classifications and Standards, Reg 61-69)
   e. Dilution Factor:

      Outfalls 001, 002, and 003:

$$\text{Dilution factor} = \frac{\text{Stream Flow} + \text{Effluent Flow}}{\text{Effluent Flow}}$$

$$= \frac{0.0 \text{ MGD} + 12.3 \text{ MGD}}{12.3 \text{ MGD}}$$

$$= 1.0$$

6. Discharge from this facility is regulated by 40 CFR 440 .104 Subpart J - Ore Mining and Dressing Point Source Category. It should be noted that there is no discharge of process wastewater from this facility.
   - Applicable to discharges from mines and mills that use cyanidation process to extract gold.
   - 40 CFR 440.104(d)(1)- States that there shall be no discharges of process wastewater to navigable waters from mills that use the cyanidation process to extract gold unless the annual precipitation exceeds annual evaporation. The volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in 440.104(a).
   - 440.132(f) defines a "Mill" as a preparation facility within which the metal ore is cleaned, concentrated, or otherwise processed. A mill includes all ancillary operations and structures necessary to clean concentrate, or otherwise process metal ore, such as ore and gangue storage and loading facilities.
   - 440.132(g) defines a "Mine" as an active mining area, including all land and property placed under, or above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mill tailings derived from the mining, cleaning, or concentration of metal ores.

7. Instream Waste Concentration (IWC):

$$IWC = \frac{\text{Effluent Flow}}{\text{Effluent Flow + 7Q10}} \times 100$$

$$IWC = \frac{12.3\text{MGD}}{12.3\text{MGD} + 0.0\text{MGD}} \times 100$$

$$IWC = 100\%$$

III. Discharge Limitations - Outfall 001

A. Total Suspended Solids:
   1. 2D value: 30.mg/l
   2. Categorical Limit:
      Daily Maximum: 30mg/l Daily Average: 20mg/l
   3. Conclusion: Categorical limitations will apply.

B. pH:
   1. 2D value: 6.0 - 9.0
   2. Categorical Limit: 6.0 - 9.0

3. S.C. Water Classifications and Standards (S.C. Reg. 61-68): 6.0 - 8.5
4. Conclusion: The limit will be based on S.C. Water Classifications and Standards.

C. Oil and Grease:
1. 2D value: No value given
2. Based on DHEC operating procedures:
Daily Maximum: 15mg/l Daily Average: 10mg/l
3. Conclusion: DHEC operating procedures will apply.

D. Total Residual Chlorine (TRC):
1. 2D value: 0.10mg/l
2. Water Quality Criteria for Aquatic Life: Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 11ug/l Daily Maximum: 19ug/l
Dilution Factor: 1.0
Maximum effluent concentration:
Daily Average = 11ug/l x 1.0 = 11.ug/l
Daily Maximum = 19ug/l x 1.0 = 19.ug/l
3. Water Quality Criteria for Human Health (Gold Book): not available
4. State Detection Limit: 100.ug/l
5. Conclusion: The limit for TRC will be <100. ug/l as a result of the state detection limit.

E. Cyanide:
1. 2D value: No value given
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 5.2 ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 5.2ug/l x 1.0 = 5.2ug/l
Daily Maximum: 5.2ug/l x 2 = 10.4ug/l
3. Water Quality Criteria for Human Health (Gold Book): 200 ug/l
4. State Detection Limit: 0.01mg/l
5. Conclusion: The limit for cyanide will be <10.ug/l as a result of the state detection limit.

F. Arsenic:
1. Engineering Study Data, Table 6. - EP Toxicity Result: 0.2 mg/l
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average = 190ug/l Daily Maximum = 360ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 190ug/l x 1.0 = 190ug/l
Daily Maximum: 360ug/l x 1.0 = 360ug/l
3. Water Quality Criteria for Human Health (Gold Book

Level 10E-5):
Daily Average: 22ng/l x 1.0 = 22ng/l
Daily Maximum: 22ng/l x 2 = 44ng/l

4. State Detection Limit: 5.ug/l
5. Conclusion: The limit will be <5ug/l as a result of the State Detection Limit.

G. Copper:
1. 2D value: 0.30mg/l
2. Categorical Limits:
Daily Average: 0.15mg/l Daily Maximum: 0.30mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average: 6.5ug/l Daily Maximum: 9.2ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 6.6ug/l x 1.0 = 6.5ug/l
Daily Maximum: 9.2ug/l x 1.0 = 9.2ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: The limit for copper will be <10.ug/l. as a result of the state detection limit.

H. Lead (Total):
1. 2D value: 0.60mg/l
2. Categorical Limits:
Daily Average: 0.3mg/l Daily Maximum: 0.6mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 50, 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average 1.3ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 1.3ug/l x 1.0 = 1.3ug/l
4. Water Quality Criteria for Human Health (Gold Book): 50 ug/l
5. State Detection Limit: 50ug/l
6. Conclusion: The limit for lead will be <50ug/l as a result of the state detection limit.

I. Mercury:
1. 2D value: 0.002mg/l
2. Categorical Limits:
Daily Average: 0.001mg/l Daily Maximum: 0.002mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 0.012ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 0.012ug/l x 1.0 = 0.012ug/l

4. Water Quality Criteria for Human Health (Gold Book): 144 ng/l
6. State Detection Limit: 0.2ug/l
7. Conclusion: The Limit for mercury will be <0.2ug/l as a result of the state detection limit.

J. Zinc:
1. 2D value: 1.5mg/l
2. Categorical Limits:
   Daily Average: 0.75mg/l Daily Maximum: 1.5mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 45, No. 231, 11/28/80)
   Maximum recommended instream concentration:
   Daily Average: 59 ug/l
   Daily Maximum: 65 ug/l
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: 59 ug/l x 1.0 = 59.0ug/l
   Daily Maximum: 65.0ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: Limits for zinc will be based on Water Quality Criteria for Aquatic Life.

K. Cadmium:
1. 2D value: 0.10mg/l
2. Categorical Limits:
   Daily Average: 0.05mg/l Daily Maximum: 0.10mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
   (Assume a hardness of 50mg/l as CaCO)
   Maximum recommended instream concentration:
   Daily Average: 0.66ug/l
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: 0.66ug/l x 1.0 = 0.66ug/l
   Daily Maximum: 0.66ug/l x 2 = 1.32ug/l
4. Water Quality Criteria for Human Health (Gold Book): 10 ug/l
5. State Detection Limit: 10ug/l
6. Conclusion: The limit for cadmium will be <10ug/l as a result of the state detection limit.

L. Selenium:
1. 2D value: 0.70mg/l
2. Water Quality Criteria for Aquatic Life: (Fed Reg. Vol. 45, No. 231, 11/28/80)
   Acute Toxicity = 260ug/l
   Safety Factor = 100
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: (260.0ug/l)/100 x 1.0 = 2.6ug/l
   Daily Maximum: 2.6ug/l x 2 = 5.2ug/l
3. Water Quality Criteria for Human Health (Gold Book): 10 ug/l

4. State Detection Limit: 5.ug/l
5. Conclusion: The limit for selenium will be <5ug/l as a result of the State Detection Limit.

M. Total Chromium (Cr)
1. Engineering Study Data, Table 6. - EP Toxicity
Result: 1.52 mg/l
2. Water Quality Criteria for Aquatic Life (Fed Reg. Vol. 50, 7/29/85):
Four day average: (a) Chromium(III) - 0.12 mg/l
(b) Chromium(VI) - 0.011 mg/l
3. Water Quality Criteria for Human Health (Fed Reg. Vol. 50, 7/29/85):
(a) Cr (III) - 0.17 mg/l
(b) Cr (VI) - 0.05 mg/l
4. Water Quality Criteria (MCL) Gold Book: 0.05 mg/l (total)
5. State Detection Limit: 0.01 mg/l
6. Conclusion: The limit for Chromium will be based on Water Quality Criteria for Aquatic Life.

N. Barium (Ba)
1. Engineering Study Data, Table 6. - EP Toxicity
Result: 12.5 mg/l
2. Water Quality Criteria (Aquatic Life) Gold Book: 50.0 mg/l
3. Water Quality Criteria (Human Health) Gold Book: 1.0 mg/l
4. State Detection Limit: 0.05 mg/l
5. Conclusion: The limit for Barium will be based on Water Quality Criteria for Human Health.

O: Biological Monitoring

1. Due to the criteria being below detection limits for several parameters, biological monitoring will be required. The specific language for this testing is included in the part III special conditions of the permit.

IV. Discharge Limitations - Outfall 002

A. Total Suspended Solids:
1. 2D value: 30.mg/l
2. Categorical Limit:
Daily Maximum: 30mg/l Daily Average: 20mg/l
3. Conclusion: Categorical limitations will apply.

B. pH:
1. 2D value: 6.0 - 9.0
2. Categorical Limit: 6.0 - 9.0
3. S.C. Water Classifications and Standards (S.C.

Reg. 61-68): 6.0 - 8.5
4. Conclusion: The limit will be based on S.C. Water Classifications and Standards.

C. Oil and Grease:
1. 2D value: No value given
2. Based on DHEC operating procedures:
Daily Maximum: 15mg/l Daily Average: 10mg/l
3. Conclusion: DHEC operating procedures will apply.

D. Total Residual Chlorine (TRC):
1. 2D value: 0.10mg/l
2. Water Quality Criteria for Aquatic Life: Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 11ug/l Daily Maximum: 19ug/l
Dilution Factor: 1.0
Maximum effluent concentration:
Daily Average = 11ug/l x 1.0 = 11.ug/l
Daily Maximum = 19ug/l x 1.0 = 19.ug/l
3. Water Quality Criteria for Human Health (Gold Book): not available
4. State Detection Limit: 100.ug/l
5. Conclusion: The limit for TRC will be <100. ug/l as a result of the state detection limit.

E. Cyanide:
1. 2D value: No value given
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 5.2 ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 5.2ug/l x 1.0 = 5.2ug/l
Daily Maximum: 5.2ug/l x 2 = 10.4ug/l
3. Water Quality Criteria for Human Health (Gold Book): 200 ug/l
4. State Detection Limit: 0.01mg/l
5. Conclusion: The limit for cyanide will be <10.ug/l as a result of the state detection limit.

F. Arsenic:
1. Engineering Study Data, Table 6. - EP Toxicity Result: 0.2 mg/l
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average = 190ug/l Daily Maximum = 360ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 190ug/l x 1.0 = 190ug/l
Daily Maximum: 360ug/l x 1.0 = 360ug/l
3. Water Quality Criteria for Human Health (Gold Book Level 10E-5):..

Daily Average: 22ng/l x 1.0 = 22ng/l
Daily Maximum: 22ng/l x 2 = 44ng/l

4. State Detection Limit: 5.ug/l
5. Conclusion: The limit will be <5ug/l as a result of the State Detection Limit.

G. Copper:
1. 2D value: 0.30mg/l
2. Categorical Limits:
Daily Average: 0.15mg/l Daily Maximum: 0.30mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average: 6.5ug/l Daily Maximum: 9.2ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 6.5ug/l x 1.0 = 6.5ug/l
Daily Maximum: 9.2ug/l x 1.0 = 9.2ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: The limit for copper will be <10.ug/l. as a result of the state detection limit.

H. Lead (Total):
1. 2D value: 0.60mg/l
2. Categorical Limits:
Daily Average: 0.3mg/l Daily Maximum: 0.6mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 50, 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average 1.3ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 1.3ug/l x 1.0 = 1.3ug/l
4. Water Quality Criteria for Human Health (Gold Book): 50 ug/l
5. State Detection Limit: 50ug/l
6. Conclusion: The limit for lead will be <50ug/l as a result of the state detection limit.

I. Mercury:
1. 2D value: 0.002mg/l
2. Categorical Limits:
Daily Average: 0.001mg/l Daily Maximum: 0.002mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 0.012ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 0.012ug/l x 1.0 = 0.012ug/l
4. Water Quality Criteria for Human Health (Gold

Book): 144 ng/l
6. State Detection Limit: 0.2ug/l
7. Conclusion: The Limit for mercury will be <0.2ug/l as a result of the state detection limit.

J. Zinc:
1. 2D value: 1.5mg/l
2. Categorical Limits:
Daily Average: 0.75mg/l Daily Maximum: 1.5mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 45, No. 231, 11/28/80)
Maximum recommended instream concentration:
Daily Average: 59 ug/l
Daily Maximum: 65 ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 59ug/l x 1.0 = 59.0ug/l
Daily Maximum: 65.0ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: Limits for zinc will be based on Water Quality Criteria for Aquatic Life.

K. Cadmium:
1. 2D value: 0.10mg/l
2. Categorical Limits:
Daily Average: 0.05mg/l Daily Maximum: 0.10mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average: 0.66ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 0.66ug/l x 1.0 = 0.66ug/l
Daily Maximum: 0.66ug/l x 2 = 1.32ug/l
4. Water Quality Criteria for Human Health (Gold Book): 10 ug/l
5. State Detection Limit: 10ug/l
6. Conclusion: The limit for cadmium will be <10ug/l as a result of the state detection limit.

L. Selenium:
1. 2D value: 0.70mg/l
2. Water Quality Criteria for Aquatic Life: (Fed Reg. Vol. 45, No. 231, 11/28/80)
Acute Toxicity = 260ug/l
Safety Factor = 100
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: (260.0ug/l)/100 x 1.0 = 2.6ug/l
Daily Maximum: 2.6ug/l x 2 = 5.2ug/l
3. Water Quality Criteria for Human Health (Gold Book): 10 ug/l
4. State Detection Limit: 5.ug/l

4. Conclusion: The limit will be based on S.C. Water Classifications and Standards.

C. Oil and Grease:
1. 2D value: No value given
2. Based on DHEC operating procedures:
Daily Maximum: 15mg/l Daily Average: 10mg/l
3. Conclusion: DHEC operating procedures will apply.

D. Total Residual Chlorine (TRC):
1. 2D value: 0.10mg/l
2. Water Quality Criteria for Aquatic Life: Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 11ug/l Daily Maximum: 19ug/l
Dilution Factor: 1.0
Maximum effluent concentration:
Daily Average = 11ug/l x 1.0 = 11.ug/l
Daily Maximum = 19ug/l x 1.0 = 19.ug/l
3. Water Quality Criteria for Human Health (Gold Book): not available
4. State Detection Limit: 100.ug/l
5. Conclusion: The limit for TRC will be <100. ug/l as a result of the state detection limit.

E. Cyanide Value: 0.10 ug/l
1. 2D value: No value given
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 5.2 ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 5.2ug/l x 1.0 = 5.2ug/l
Daily Maximum: 5.2ug/l x 2 = 10.4ug/l
3. Water Quality Criteria for Human Health (Gold Book): 200 ug/l
4. State Detection Limit: 0.01mg/l
5. Conclusion: The limit for cyanide will be <10.ug/l as a result of the state detection limit.

F. Arsenic:
1. Engineering Study Data, Table 6. - EP Toxicity Result: 0.2 mg/l
2. Water Quality Criteria for Aquatic Life:(Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average = 190ug/l Daily Maximum = 360ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 190ug/l x 1.0 = 190ug/l
Daily Maximum: 360ug/l x 1.0 = 360ug/l
3. Water Quality Criteria for Human Health (Gold Book Level 10E-5):
Daily Average: 22ng/l x 1.0 = 22ng/l

5. Conclusion: The limit for selenium will be <5ug/l as a result of the State Detection Limit.

M. Total Chromium (Cr)
1. Engineering Study Data, Table 6. - EP Toxicity Result: 1.52 mg/l
2. Water Quality Criteria for Aquatic Life (Fed Reg. Vol. 50, 7/29/85):
Four day average: (a) Chromium(III) - 0.12 mg/l
(b) Chromium(VI) - 0.011 mg/l
3. Water Quality Criteria for Human Health (Fed Reg. Vol. 50, 7/29/85):
(a) Cr (III) - 0.17 mg/l
(b) Cr (VI) - 0.05 mg/l
4. Water Quality Criteria (MCL) Gold Book: 0.05 mg/l (total)
5. State Detection Limit: 0.01 mg/l
6. Conclusion: The limit for Chromium will be based on Water Quality Criteria for Aquatic Life.

N. Barium (Ba)
1. Engineering Study Data, Table 6. - EP Toxicity Result: 12.5 mg/l
2. Water Quality Criteria (Aquatic Life) Gold Book: 50.0 mg/l
3. Water Quality Criteria (Human Health) Gold Book: 1.0 mg/l
4. State Detection Limit: 0.05 mg/l
5. Conclusion: The limit for Barium will be based on Water Quality Criteria for Human Health.

O: Biological Monitoring

1. Due to the criteria being below detection limits for several parameters, biological monitoring will be required. The specific language for this testing is included in the part III special conditions of the permit.

V. Discharge Limitations - Outfall 003

A. Total Suspended Solids:
1. 2D value: 30.mg/l
2. Categorical Limit:
Daily Maximum: 30mg/l Daily Average: 20mg/l
3. Conclusion: Categorical limitations will apply.

B. pH:
1. 2D value: 6.0 - 9.0
2. Categorical Limit: 6.0 - 9.0
3. S.C. Water Classifications and Standards (S.C. Reg. 61-68): 6.0 - 8.5

Daily Maximum: 22ng/l x 2 = 44ng/l
4. State Detection Limit: 5.ug/l
5. Conclusion: The limit will be <5ug/l as a result of the State Detection Limit.

G. Copper:
1. 2D value: 0.30mg/l
2. Categorical Limits:
Daily Average: 0.15mg/l Daily Maximum: 0.30mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average: 6.5ug/l Daily Maximum: 9.2ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 6.5ug/l x 1.0 = 6.5ug/l
Daily Maximum: 9.2ug/l x 1.0 = 9.2ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: The limit for copper will be <10.ug/l. as a result of the state detection limit.

H. Lead (Total):
1. 2D value: 0.60mg/l
2. Categorical Limits:
Daily Average: 0.3mg/l Daily Maximum: 0.6mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 50, 145, 7/29/85)
(Assume a hardness of 50mg/l as CaCO)
Maximum recommended instream concentration:
Daily Average 1.3ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 1.3ug/l x 1.0 = 1.3ug/l
4. Water Quality Criteria for Human Health (Gold Book): 50 ug/l
5. State Detection Limit: 50ug/l
6. Conclusion: The limit for lead will be <50ug/l as a result of the state detection limit.

I. Mercury:
1. 2D value: 0.002mg/l
2. Categorical Limits:
Daily Average: 0.001mg/l Daily Maximum: 0.002mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
Maximum recommended instream concentration:
Daily Average: 0.012ug/l
Dilution Factor: 1.0
Maximum recommended effluent concentration:
Daily Average: 0.012ug/l x 1.0 = 0.012ug/l
4. Water Quality Criteria for Human Health (Gold Book): 144 ng/l

6. State Detection Limit: 0.2ug/l
7. Conclusion: The Limit for mercury will be <0.2ug/l as a result of the state detection limit.

J. Zinc:
1. 2D value: 1.5mg/l
2. Categorical Limits:
   Daily Average: 0.75mg/l Daily Maximum: 1.5mg/l
3. Water Quality Criteria for Aquatic Life: (Fed. Reg. Vol. 45, No. 231, 11/28/80)
   Maximum recommended instream concentration:
   Daily Average: 59 ug/l
   Daily Maximum: 65 ug/l
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: 59 ug/l x 1.0 = 59.0ug/l
   Daily Maximum: 65.0ug/l
4. Water Quality Criteria for Human Health (Gold Book): not available
5. State Detection Limit: 10.ug/l
6. Conclusion: Limits for zinc will be based on water quality Criteria for Aquatic Life.

K. Cadmium:
1. 2D value: 0.10mg/l
2. Categorical Limits:
   Daily Average: 0.05mg/l Daily Maximum: 0.10mg/l
3. Water Quality Criteria for Aquatic Life : (Fed. Reg. Vol. 50, No. 145, 7/29/85)
   (Assume a hardness of 50mg/l as CaCO)
   Maximum recommended instream concentration:
   Daily Average: 0.66ug/l
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: 0.66ug/l x 1.0 = 0.66ug/l
   Daily Maximum: 0.66ug/l x 2 = 1.32ug/l
4. Water Quality Criteria for Human Health (Gold Book): 10 ug/l
5. State Detection Limit: 10ug/l
6. Conclusion: The limit for cadmium will be <10ug/l as a result of the state detection limit.

L. Selenium:
1. 2D value: 0.70mg/l
2. Water Quality Criteria for Aquatic Life: (Fed Reg. Vol. 45, No. 231, 11/28/80)
   Acute Toxicity = 260ug/l
   Safety Factor = 100
   Dilution Factor: 1.0
   Maximum recommended effluent concentration:
   Daily Average: (260.0ug/l)/100 x 1.0 = 2.6ug/l
   Daily Maximum: 2.6ug/l x 2 = 5.2ug/l
3. Water Quality Criteria for Human Health (Gold Book): 10 ug/l
4. State Detection Limit: 5.ug/l
5. Conclusion: The limit for selenium will be <5ug/l

as a result of the State Detection Limit.

M. Total Chromium (Cr)
1. Engineering Study Data, Table 6. - EP Toxicity
   Result: 1.52 mg/l
2. Water Quality Criteria for Aquatic Life (Fed Reg. Vol. 50, 7/29/85):
   Four day average: (a) Chromium(III) - 0.12 mg/l
   (b) Chromium(VI) - 0.011 mg/l
3. Water Quality Criteria for Human Health (Fed Reg. Vol. 50, 7/29/85):
   (a) Cr (III) - 0.17 mg/l
   (b) Cr (VI) - 0.05 mg/l
4. Water Quality Criteria (MCL) Gold Book: 0.05 mg/l (total)
5. State Detection Limit: 0.01 mg/l
6. Conclusion: The limit for Chromium will be based on Water Quality Criteria for Aquatic Life.

N. Barium (Ba)
1. Engineering Study Data, Table 6. - EP Toxicity
   Result: 12.5 mg/l
2. Water Quality Criteria (Aquatic Life) Gold Book: 50.0 mg/l
3. Water Quality Criteria (Human Health) Gold Book: 1.0 mg/l
4. State Detection Limit: 0.05 mg/l
5. Conclusion: The limit for Barium will be based on Water Quality Criteria for Human Health.

O: Biological Monitoring

1. Due to the criteria being below detection limits for several parameters, biological monitoring will be required. The specific language for this testing is included in the part III special conditions of the permit.

SUMMARY

Pollutant	Outfall 001 (mg/l)	Outfall 002 (mg/l)	Outfall 003 (mg/l)
Flow (MGD)	MR	MR	MR
Cd(T)	<0.01	<0.01	<0.01
Cu(T)	<0.01	<0.01	<0.01
CN(T)	<0.01	<0.01	<0.01
Pb(T)	<0.05	<0.05	<0.05
Hg	<0.0002	<0.0002	<0.0002

As	<0.005	<0.005	<0.005
Zn(T)	0.059	0.050	0.059
O&G	10.00	10.00	10.00
TSS	20.00	20.00	20.00
pH	6.0 to 8.5	6.0 to 8.5	6.0 to 8.5
TRC	<0.1	<0.1	<0.1
Se	<0.005	<0.005	<0.005
Ba	1.0	1.0	1.0
Cr(III)	0.12	0.12	0.12
Cr(VI)	0.011	0.011	0.011
Biological Monitoring	-	-	-

MR = Monitor and Report